



## Management Information System: Case Study of Amazon.Com

Miss. Ayse Demir (MBA)

University of Wales

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**ABSTRACT:** Organizations under E commerce industry seek to attain core competence by creating and sustaining a unique process to collect personal information about customers and their purchasing trends. The report critically evaluates the how service based organization -Amazon use Management information systems as a vibrant tool in attaining competitive advantage through efficient management and acquisition of information. The study involves assessment of the best MIS practices in place for Amazon throughout its value chain activities. Uniqueness of MIS is being highlighted in the report through assessment of technology, process and the systems that Amazon use right from the initiation of the end user with the website till the payment and delivery mode is being selected. The last part of the report involves discussions on recommendations and suggestions for Amazon in order to enhance its existing MIS systems in place. The recommendations are based on the assessment of qualitative information and the extent of feasibility in implementing the proposed strategies.

**Keywords:** E commerce, Management Information System, Amazon

### I. INTRODUCTION

Organizations under E commerce industry seek to attain core competence by creating and sustaining a unique process to collect personal information about customers and their purchasing trends. The report critically evaluates the how service based organization -Amazon use Management information systems as a vibrant tool in attaining competitive advantage through efficient management and acquisition of information. The study involves assessment of the best MIS practices in place for Amazon throughout its value chain activities. Uniqueness of MIS is being highlighted in the report through assessment of technology, process and the systems that Amazon use right from the initiation of the end user with the website till the payment and delivery mode is being selected. The last part of the report involves discussions on recommendations and suggestions for Amazon in order to enhance its existing MIS systems in place. The recommendations are based on the assessment of qualitative information and the extent of feasibility in implementing the proposed strategies.

Management information systems aids organization and its system to integrate in an effective and efficient manner to bring out the synergy between the interactions of the people and information systems. MIS facilitates management decisions at the strategic and operational levels of an organization. The case of Amazon reflects the successful alignment of information systems with the overall strategic goals of the organization. Amazon has been fine tuning its E strategy by means of keeping its website systems unique and separate from that of its order systems. MIS has played a crucial role in the development of the company on global context (Weber, 2010). Amazon has used MIS as a vibrant tool to streamlines its management activities and that at the same time has ensured that the customers are offered with diversified services through its MIS (Cao, 2011).

In the process of collecting and integrating data with appropriate functions of an organization the role of enterprise resource management systems has been crucial. The uniqueness of ERP systems lies in its ability to integrate the external and the internal information influencing the management of functions within an organization. E commerce organizations lay a strong foundation towards integrating the internal and external process of an organization with that of the expectations of the stakeholders.

Increasing number of software's used by E commerce organization has been subjected to up gradations and changes due to the factors influencing the expectation and outcomes of the use of software. Software configuration management has been considered as an essential tool to control the entire evolution and life cycle of the software projects (Bajaj, 2011).

Customer relationship management has turned to be the buzz word amongst growing E commerce organizations. CRM aids the organization in streamlining its information towards marketing, technical

\*Corresponding Author: Miss. Ayse Demir<sup>1</sup>

assistance and offering service for customers. The success of implementation has reflect in the effectiveness and efficiency of organization in reaping the maximum benefits out of the information collect about interaction of customers with the organization.

## II. CASE STUDY OF AMAZON

Emerging as an American multinational E commerce co, Amazon has turned out to be leading online retailer co and offering cloud computing services. Two technologies driving the growth of Amazon has been the integration of Customer relationship management and Information management to the overall business strategy. Linux has been a core strength behind the technology of Amazon, the IT infrastructure of the organization has been built in such a way that could handle more than millions of operations and also handles queries and issue of more than half of the volume of sellers. The company has been exposed to threats of storing and securing the credit cards and debit cards information of more than 1000's of customers a day (jordon, 2008). The company uses the customer relationship management module under enterprise resources management to store personalized information and purchasing trends of its customers which is integrated with the marketing and advertising campaigns of the organization.



Figure 1 Source: (Ellis, 2011), The E-commerce book: building the E-empire p: 45

The sales strategy of Amazon has been very unique that reflects its MIS. The operations of the company have made a transition from a single level sales strategy to that of multi level e commerce strategy. The initial growth of the organization was favoured by business to consumer models of selling and business to business mode of operations. The recent development in the E commerce population has enhanced the interactions between the consumer and the business thus forcing Amazon to give more priority and customization to its IT to value and respect reviews of the customers as a part of their business operations (jordon, 2008). The exclusion of the retailers has been the signs of growth in Amazon as it allows the customers to sell and buy the products using Amazon as a platform.

The business model of Amazon reflects the management information systems. Browsing, management of accounts and the final step involves shopping. Unique MIS and technology play a crucial role in each one of these stages that is discussed below. Elastic cloud computing has been yet another vibrant web service offered by Amazon. The objective of EC2 at Amazon has been to serve the developers who work with web scale computing. It offers the end users the complete control over the computing actions and lets customers to use the computer environment of Amazon. The pros of E2C computing at Amazon are its ability to save more time there by ignoring the needs of booting a new server (Janice, 2011). Amazon machine image is being created by the end user to utilize E2C services. The most attractive part of E2C is the feature of paying only for the actual use and also helps the developers to customize their applications so that most common failure scenario is being isolated.

Amidst the E2C application of Amazon, S3 acts as a storage device for the usage of internet. The interface helps the end users to use save, retrieve, use any volume of data from any location irrelevant to the time. Users initiate surfing in order to find the products which they desire to buy. Search agent is the business model used by Amazon at this juncture. It uses data mining technique where in the information stored about the products and the services are retrieved from the central data base and customers are offered with the appropriate results. For customers who would like to sell their product the image of the product has to be uploaded with a small description about the condition. Amazon takes the brokerage model as it acts as a platform to business to business, consumer to consumer transactions. Amazon charges a fee against the mode of usage by the end users. Auction brokers are yet another tool that has been used by Amazon that includes bidding information and

fulfilment. Amazon has got the patent registered (U.s patent Feb 8, 2005) for offering the personalized content to customer with the help of tracking the actions of users in a surfing session. This reflects the unique competence of Amazon in offering the most likely products to the customers at the time of search. At the time when customers search or complete finding the book the virtual space stating that “customer who have bought this product / book have also bought” these phrases reflect the success of the company in enhancing the retention rates of the customers and also has provoked a sense of belongingness with the customers.

### 2.1 Online shopping and order tracking



Figure 2, Source: (Kleindl, 2011), E-marketing, p: 89

Customers could add any number of products which they wish to buy. The integration of CRM at this stage allows the users to view the products that have been bought by their close networks. And customers could also save a particular product for future purchase. This information's are saved under the Infomediary model of MIS. Amazon has created the platform of social networking within the website which further offers more interactivity.

At this juncture Amazon offers the customers the option of viewing their search histories so that they will be able to select similar products that they wish to buy. This feature has been patented by Amazon on June 28, 2005 thus adding more to the inventory of core competence in its Management information systems. The sign in process of Amazon collects the new user's information with appropriate fields to be filled which is directly linked to Infomediary model. The next time when a user enters the website of Amazon he /is offered with a set of recommendations of products available in Amazon.

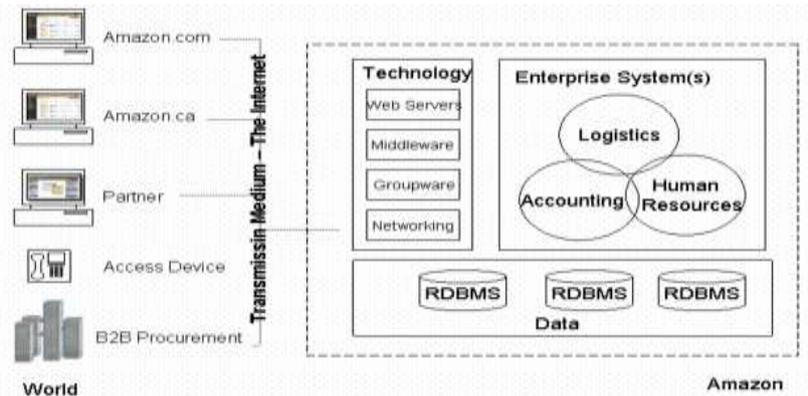


Figure 3: (Bajaj, 2011), E-Commerce, p: 45

Infomediary model is used by Amazon with the objective of collecting the consumer purchase and personal information which is being critically analyzed and evaluated for initiation of marketing campaigns (Allen, 2009). The information helps Amazon in offering recommendations to the customers on frequently shopped items or visited items. The personal preferences are being asked at the time of registration and recommendations pops up to the customers based on the key words of their areas of interest (Poynter, 2009).

### 2.2 Acquisition Of Customer Shipment Address:

Customers are requested to offer the shipping address of whom the product has to be sent. In some cases the buyer themselves might order for the product from Amazon in such case they can retrieve their shipping address that has been saved at the time of registration (Anderson, 2011). The option of retrieving the address helps the users to reduce the time involved in re entering the address again. In case if the customers wish to add a different address they can save it by offering a new name (Janice, 2011).



**Figure 4: Source:** (Ghosh, 2010), E-commerce security and privacy p: 114

Amazon offers more number of options for the end users to choose from shipping modes. The orders once placed by the customers with the selection of the shipping methods integrate with that of the enterprise resource management – logistics and delivery department. These information are actively used by the logistics department of Amazon to ensure that the customer receive the products within the stipulate lead time (jordon, 2008).

The technology used by Amazon comprises web service, middleware, group ware and most importantly networking. These lay the pillars of management information systems. The enterprise systems that are integrated with the internet are the logistics, accounting and the human resources. The technology and the enterprise systems at Amazon are interconnected with vibrant relational data base management systems which are interdependent on one another (Bryce, 2009).

**2.3 Payment systems offered to customers of Amazon:**

The payment gateway of Amazon takes in the account the debit card or credit card information of the end user who would place an order for a product. Netscape Secure Commerce Server is a vibrant tool that is used by Amazon with the help of the secure socket layer in order to store the banking information. These data are not made accessible over internet thus paving way for high confidentiality and protection of customer data. The company also provide customer an option of making a part amount of the payment online and rest through the telecommunications post order. Legal as well as privacy policies are being communicated to the users at this stage thus ensuring that the trust component of customers is being increased (Chaffey, 2009).

Yet another important part of Amazon CRM is the integration of logistics systems with that of the customer contact information. Customers could track the progress of the shipping through logging in to the Amazon website and entering a unique identity order number; this enhances the confidence amongst the customers by offering tangibility in the services. At any point of time the customers could be able to know the status of the product (Kleindl, 2011).

Each one of the marketing strategy of Amazon reflects in the behaviour, preferences Amazon also offers an incentive marketing program in order to gain more customers and business to its website. Amazon uses incentive marketing as a tool for collecting customer information which is used both for the marketing activities of the organization and also sold out to other pertinent layers for a particular fee. Virtual storefronts have been the interface which has attracts n number of customers to the website of Amazon (Kalb, 2009). Through virtual storefronts Amazon has been able to enhance the retention of the existing customers as well as increase the word of mouth marketing through gaining customer loyalty. Customers value the importance offered by Amazon towards them as the company has ensured to take all the opportunities to understand the changing preferences and expectations.

Employees of Amazon are satisfied with the work as the ERP packages offers what is being expected from each one of the end users working in for marketing, sales and administration of the business process. The role of automated warehouses is appreciable as the user interface through which the employees interact with the customers is commendable in the case of Amazon (Schenk, 2009).

Amidst interactions with the customers Amazon uses the cloud computing. The AWS product of the company has not only acted as product but as a tool behind the successful integration and management of information systems (Helsing, 2011).

### **3. Recommendations:**

#### **3.1 Enhance sorting of products and enhancing anti-phishing interventions**

As far as the customer relationship management is concerned Amazon needs to offer the customers with option of sorting a particular book / product based on the recent products, reviews and the ranking offered by the customers. Technical issues are most restraining forces of promoting new implementations, Amazon has been constantly affected by phishing issues which ask the customers for accounting information of the existing users of Amazon. This has to be addressed by vigorous anti – phishing interventions that promote awareness amongst the customers (Allen, 2009).

#### **3.2 Integration of website operations with Social networking:**

Amazon needs to enhance the synergy that turns as an outcome of integrating the information sourcing from advertising, sales and post sales services. The MIS of the organization must aid in offering touch points to the customers at each point of time. Amidst using the customer relationship platform for marketing and acquiring more customers, Amazon must integrate its entire platform with social networking websites. It is evident from the MIS of E bay and upcoming E commerce organizations that majority of the customers do exist in the social space. By integrating the shopping experience of a user with their social networking profile will result in promoting the product as well as the services offered by Amazon to the close networks of the end users. Use of enterprise resources planning tools in social networking would help Amazon in sharing the reviews and the responses of end users which will enhance the trust amongst the customers (Anderson, 2011).

#### **3.3 Establish Customer relationship management interventions across the business operations of Amazon:**

Amazon has to devise more customer relationship marketing and also enhances its logistics operations accordingly. This calls for allocation of more human resource and expansion in to unexplored markets. With the use of data from the purchasing trends of customers Amazon need to analyze the next potential market in terms of demographics. The ageing population has increased the scope for customizing the needs of the end users as the mobile applications and population of i pad and tablet users have increased (Bryce, 2009). Segregation of the customer preferences based on the background ethnics will aid helping hands to offer an exclusive web experience to different users from different background with different languages. Offering customized language preference to the customers at the time of shopping will enhance the shopping experience. Use of Mis has to be extended further in analyzing the best brands. Analytics form the culture of information systems for Amazon as the company has to aid not only the consumers but also the business associates and brands who do business with Amazon (Goldsmith, 2011).

#### **3.4 Implement Artificial intelligence systems and intelligent virtual agents**

Use of artificial intelligence systems as a tool for upgrading the bonding with the customers is yet another recommendation that would work for Amazon in the long run. Use of intelligent virtual agents would set the future for Amazon and its information systems. More changes have to take place in terms of the way the information systems interact with the people. Amazon needs to ensure that change management is a norm as the E strategy of Amazon has to be flexible enough to meet the changing demands and needs of customers (Goldsmith, 2011). The alignment of intelligent virtual agents with the whole MIS systems needs to be communicated to all the stakeholders. Amazon must aim in ensuring that the technology and the platform used must out beat the existing IS of its rivals.

Use of avatars and branding that avatar exclusively as an agent for Amazon business would bring about a revolution in the use of Management information systems. The virtual agents through whom the data will be collected and interpreted by the marketing and the logistics team will aid in strengthening the operations of the respective departments (Cao, 2011).

The Intelligent virtual agents will pave way for offering human like personalized interaction with the customers of Amazon. Undoubtedly the existing customer base and the marketing channels will take the success of intelligent virtual agents within a short span of time (Shanahan, 2011).

Amazon can use the intelligent virtual agents as an interface to understand the issues associated with the logistics and operations. A 24 hour chat service could be initiated and the response and interaction could be saved as information for future use (Dummies, 2007)

Supply chain management, customer relationship management, operations management and the human resource management of Amazon has to be driven with the use of intelligent virtual agents. As far as the efficiency of MIS in responding to the queries of the customers has been low, customers have constantly filed a set of complaints due to the delay they perceive with responses. Use of intelligent virtual agents would help the organization in relying less on the customer service centre and could cut high number of costs involved with human resource (Weber, 2010).

### **3.5 Customize Marketing campaigns**

The marketing campaigns of Amazon must be more tailored to the needs of the customers. Use of data of customers belonging to a particular community will promote this practice there by offering newsletters which are most customized to the needs of the consumer communities. Recommendation for Amazon would not comprise how it could change its technology or platform rather will involve suggestions to correlate and make the best use of available information.

Acquisition of the market is not the only solution for Amazon. Amidst the use of CRM techniques through the Enterprise resource management solutions, more emphasis has to be given to the human resource management and tracking of business activities. Key performance indicators and key result areas define the success of a firm. Undoubtedly Amazon has registered the success but the changes in the IT and E commerce platform needs constant changes to be done on the KPI's and KRA's to the employees (Jenkins, 2011). Role of MIS at this juncture becomes more evident as relating the success of individual contribution of each one of the employee to that of the overall success of the firm is the crucial challenge. Transparency in the accomplishments thus has to be offered to the employees through dashboards and tracking of sales across the product lines of Amazon (Bryce, 2009).

### **3.6. Resolve the existing gap between the marketing and sales activities of Amazon:**

The inter relativity between the sales and the marketing department is yet another area that needs more intervention through standardizing MIS systems. ERP has driven the success of Amazon to a great extent, but the analysis of the errors and pitfalls that Amazon has come across states that knowledge management is yet another area which needs to integrate with the existing Information system and its infrastructure (Klaus, 2010). Experiences associated with the customer issues and resolving strategies will further reduce the level of customer dissatisfaction perceived with customer call centres. The employees must also be offered modes and means of viewing the number of customer complaints and returned products through ERP packages this will improve pro active offline customer service and help Amazon gain more emotional bonding amongst its customers (Ghosh, 2010).

The most attractive part of implementing the intelligent virtual agents for Amazon is in the integration of the technology with other web based applications (Scott, 2009). Given the growth of social networking both on virtual and non virtual modes Amazon will be able to spread its business further with the use of MIS in to second life (a virtual social networking platform) this will ultimately offer a long lasting emotional impression left in the minds of customers of Amazon (Lewis, 2011).

## **III. Conclusion**

The report thus examines the current infrastructure and process behind the management information systems of Amazon. It is evident from the report that there is plenty of scope for Amazon to enhance the customer relationship management through its Enterprise resource planning.

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